Before the
Federal Communications Commission
Washington, D.C. 20554

ET Docket No. 93-7

In the Matter of

Implementation of Section 17
of the Cable Television
Consumer Protection and
Competition Act of 1992

Compatibility Between
Cable Systems and Consumer
Electronics Equipment

MEMORANDUM OPINION AND ORDER

Adopted: March 22, 1996; Released: April 10, 1996

By the Commission: Commissioner Barrett approving in part, dissenting in part and issuing a statement.

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I. INTRODUCTION

1. The Commission is hereby revising and clarifying certain aspects of its regulations for ensuring compatibility between cable systems and consumer electronics equipment. In particular, we are: 1) clarifying the requirement for cable operators to offer subscribers set-top devices with multiple tuners; 2) eliminating the prohibition on changing the infrared (IR) codes used with remote controls; 3) clarifying our policy with regard to the Decoder Interface connector standard; and, 4) refining the "cable ready" TV receiver standards. These revisions and clarifications will further our goals of promoting greater compatibility between cable systems and consumer equipment, fostering competition and entry in equipment markets and encouraging the dissemination of information on the availability of equipment choices. This action is in response to ten Petitions for Reconsideration of the *First Report and Order* in this proceeding.[1]

II. BACKGROUND

2. In the *First Report and Order*, we adopted regulations to ensure compatibility between cable systems and consumer electronics equipment, *i.e.*, TV receivers, videocassette recorders (VCRs) and similar devices.[2] These regulations include requirements for cable operators to take a number of actions that will improve compatibility between existing cable system and consumer TV equipment. They also include rules and standards for both cable operators and consumer equipment manufacturers that are intended to achieve more effective compatibility through new cable and consumer equipment. The rules for improving compatibility between existing cable system and consumer equipment require that cable operators:

1) refrain from scrambling program signals carried on the basic tier of service;[3]

2) offer subscribers supplemental equipment to enable them to use the special features and functions of their TV equipment with cable service;[4]

3) provide a consumer education program to inform subscribers of potential compatibility problems and methods for resolving such problems; and,[5]

4) allow set-top devices that incorporate remote control capability to be operated with subscriber-owned remote controls.[6]

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[1] *See First Report and Order*, ET Docket No. 93-7, adopted April 4, 1994, 9 FCC Rcd 1981 (1994). These rules were adopted in response to the provisions of Section 17 of the Cable Consumer Protection and Competition Act of 1992 (1992 Cable Act), Pub. L. No. 102-385, 106 Stat. 1460, (1992), §17. Section 17 adds a new Section 624A to the Communications Act of 1934 that requires the Commission to adopt regulations to ensure compatibility between cable systems and consumer electronics equipment (generally TV receivers and videocassette recorders, or VCRs).

[2] Compatibility problems between cable systems and consumer electronics equipment tend to limit or preclude the operation of premium features of consumer equipment and/or to affect the ability of consumer equipment to receive cable programming. For example, use of set-top cable converter/descrambler devices (set-top boxes) typically hinders the operation of VCR features such as timed recording of sequential programs on different channels and recording one program while watching another. Set-top boxes also preclude the operation of premium features of TV receivers, such as "Picture-in-Picture," that require simultaneous tuning of two channels. In addition, current TV receivers and VCRs tend to vary in their ability to tune the full range of channels offered by cable systems. Compatibility problems also arise in the use of consumer-owned remote controls with set-top boxes provided by cable systems.

[3] *Id.*, at paras. 55-69.

[4] *Id.*, at paras. 47-48.

[5] *Id.*, at paras. 71-74.

[6] *Id.*, at paras. 62-63.

The compatibility rules for new equipment provide marketing rules and technical standards for "cable ready" consumer TV equipment and require that both "cable ready" consumer equipment and cable systems use a standard cable channel plan.[7]

3. We also concluded that more effective compatibility between consumer TV equipment and cable systems that use scrambling can be achieved through use of a standard interface connector, or "Decoder Interface," in "cable ready" consumer TV equipment and associated component descrambler devices to be provided by cable systems.[8] We stated that such an approach could eliminate the need for use of a set-top cable box. However, based on indications that the cable and consumer electronics industries were working on a new Decoder Interface standard that will serve both existing analog cable operations and also incorporate flexibility to support new technologies and services, including digital cable service, we decided to allow these industry parties additional time to complete the new standard.[9] We therefore indicated that we would establish a Decoder Interface standard and address all aspects of its use pending the completion of an acceptable new standard.

4. Ten parties filed Petitions for Reconsideration of the *First Report and Order*.[10] The petitioners all support the basic approach of our plan for ensuring compatibility. They request that we modify or clarify various portions of the rules and standards implementing this plan, including the supplemental equipment requirement, the consumer education requirement, the prohibition on changing IR codes used with remote controls, the Decoder Interface technical standard, labeling and marketing rules, receiver tuning range and tuner performance standards, and cable system channelization practices.[11] Nine parties submitted responses addressing these petitions and seven parties filed replies to the responses.[12]

III. RULES FOR EXISTING EQUIPMENT

A. Supplemental Equipment

5. In the *First Report and Order*, we required cable operators that use scrambling to offer their subscribers supplemental equipment to allow the operation of TV receivers and VCRs that make simultaneous use of multiple signals.[13] We indicated that this capability could be provided through devices ". . . such as by-pass switches, and set-top devices that include multiple descramblers and/or timers that can be programmed to tune to alternative channels sequentially . . ." The rule for this requirement specifies that such supplemental equipment shall have the capability "to allow simultaneous reception of any two or more scrambled or encrypted signals . . . "[14] We also delayed the implementation date of the requirement for cable operators to offer their subscribers set-top boxes with multiple tuners until October 31, 1994.[15]

6. *Petitions*. NCTA and SA request that we modify the rules to clarify that beginning in October, 1995, cable operators are required to offer set-top devices that provide *dual*, rather than multiple, tuning capability. NCTA states that dual tuner set-top devices will be sufficient to facilitate the operation of "Picture-in-Picture" features or the ability to watch one program while recording another. It further states that incorporating multiple tuners capable of supporting every possible combination of "Picture-in-Picture" display into set-top devices would be cost-prohibitive and highly impractical given the expected low demand for such capability. SA states that the technology for manufacturing set-top devices with more than two tuners has not yet progressed far beyond the drawing board even for those manufacturers who believe that a market for such features might exist. CATA requests that we clarify this rule to indicate that supplemental equipment must permit reception of a minimum of two scrambled or encrypted signals.

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[7] *Id.*, at paras. 78-135.

[8] *Id.*, at paras. 39-40.

[9] We also found that standards are needed for cable digital transmissions. We did not, however, adopt standards for cable digital service in the *First Report and Order*, as developmental work on cable digital technologies and services has not reached a stage where it would be appropriate to specify such regulations. We indicated that we will continue to monitor progress in this area and will initiate a separate proceeding on digital standards issues in the future. We will also be looking at the issue of commonality between digital standards for broadcast television and cable service in our ATV proceding, MM Docket No. 87-268.

[10] The parties filing Petitions for Reconsideration of the First Report and Order are: ANTEC Corporation (ANTEC), Cablevision Systems Corporation (CVS), Cable Telecommunications Association (CATA), the Consumer Electronics Group of the Electronics Industries Association (EIA/CEG), General Instrument Corporation (GI), the National Cable Television Association (NCTA), Scientific-Atlanta, Inc. (SA), TeleCable Corporation (TeleCable) and Time Warner Entertainment Company, L.P. (Time Warner), and Zenith Electronics Corporation (Zenith). Zenith's petition was late-filed. As this petition does not raise any additional issues that are not addressed in the other petitions, it is being considered herein.

[11] The EIA also observes that some cable operators engage in channel mapping, a practice whereby the channel number displayed on set-top devices used to receive cable service does not correspond to the channel number specified in the EIA IS-132 channel plan for the frequency used in transmitting the signal. (In the *First Report and Order*, we adopted EIA IS-132 as the standard cable television channel plan.) EIA notes that channel mapping was not addressed in the *First Report and Order* and requests that we prohibit this practice. The topic of channel mapping also relates to issues concerning the on-channel signal carriage requirements and tier buy-through prohibitions in Sections 76.57 and 76.921, respectively, of our rules. *See* 47 C.F.R. §§76.57 and 76.921. As these issues are beyond the scope and record of this proceeding, we are not addressing EIA's request for a prohibition on channel mapping herein.

[12] The parties submitting responses are: Cablevision Industries Corporation (CVI), Compaq Computer Corporation (Compaq), the Consumer Electronics Group of the Electronics Industries Association, the Consumer Electronics Retailers Coalition (CERC), the Consumer Federation of America/Home Recording Rights Coalition (CFA/HRRC), General Instrument Corporation, Hewlett-Packard Company (HP), the National Cable Television Association, and Time Warner Entertainment Company, L.P. The parties filing replies are: the Consumer Electronics Retailers Coalition, the Consumer Electronics Group of the Electronics Industries Association, General Instrument Corporation, Mitsubishi Electronics America, Inc., the National Cable Television Association, Time Warner Entertainment Company, L.P., and Zenith Electronics Corporation.

[13] *See First Report and Order, supra*, at paras. 47 and 48.

[14] *See* 47 C.F.R. §76.630(d)(2)(*i*).

[15] *See First Report and Order, supra*, at para. 77.

7. SA also requests that we clarify that the multiple tuner rule is satisfied where cable operators provide two single-tuner boxes in a "client/server" configuration, thereby achieving the same result as a single set-top with two built-in tuners. As described by SA, their "client/server" set-top equipment design provides the same functionality as an integrated dual tuner/descrambler device. Under this design approach, the two devices are linked by a communications cable and software protocol that provides for control of all operational features of both devices from the primary unit. This also allows use of a single remote control receiver in the primary, or "client," device, so that the servant device can then be located away from the TV receiver if the user is concerned about space or a clutter of devices. According to SA, this approach is more cost effective than a single device with dual tuner/descramblers and resolves inventory problems for the cable operator, since a single model of set-top box can be used as a stand-alone unit, as a client device or as a server device, depending on how individual units are installed.

8. *Responses.* In its response, EIA/CEG states that it does not oppose limiting the supplemental equipment requirement to two tuners and does not contest the petitioners' arguments that there is little demand for additional tuners and that provision of such capability may be uneconomical. It points out, however, that if the multiple tuner requirement is limited to two, some consumer electronics features such as multiple "Picture-in-Picture," and the operation of multiple VCR will not be compatible with scrambled cable service.

9. *Decision.* We agree with the petitioners that the capability to tune two scrambled channels is adequate to support the operation of the consumer equipment functions that we seek to allow through this rule. In this regard, we observe that the capability to simultaneously tune two channels will enable consumers to program recording of signals on different channels, view one signal while recording another, and operate the types of "Picture-in-Picture" features currently offered in consumer equipment.[16] We also recognize NCTA and SA's position that the demand for devices that could tune several channels is likely to be very low and, therefore, it would be very difficult for equipment manufacturers to supply such devices at a reasonable price. Accordingly, we are modifying the rules to provide that cable operators that use scrambling are required to offer supplemental equipment that has the capability to allow simultaneous reception of at least two scrambled signals. In cases where a subscriber would need to tune more than two channels simultaneously, such as that mentioned by EIA/CEG, we note that cable operators will have the discretion to provide equipment to tune as many signals as a subscriber may need or desire. Moreover, as cable operators can charge for this equipment, we would expect them to have incentive to fulfill subscriber requests for multiple tuning capability up to the limits of available equipment.

10. We agree with SA that provision of two devices linked by a control system could provide functionality equivalent to that of a single device with dual descramblers. We also believe the possible administrative efficiency associated with such an approach for some cable operators, as compared to maintaining a separate inventory of a integrated devices, is sufficient to balance the concern about the additional clutter created for subscribers by a second device. Moreover, as Scientific Atlanta indicates, it would be possible to locate the second unit away from the visible area of the TV set to avoid the appearance of clutter. In addition, we are persuaded that it is possible that the cost of providing two devices may not be more than that of a single integrated device. Accordingly, we will consider the provision of two set-top devices linked by a control system that provides functionality equivalent to that of a single device with dual descramblers to satisfy the requirement that cable operators offer to provide their subscribers with set-top devices with dual descramblers.

11. Our clarification with respect to the "client-server" solution proposed by Scientific Atlanta does not, however, mean that operators can meet the dual tuner/descrambler requirement simply by offering to provide subscribers with two independent set-top boxes. We adopted the requirement that operators make set-top boxes with dual tuner/descrambler capability available to subscribers that requested them because we believed that an integrated device would be needed by some subscribers to operate the types of special functions of their VCRs and TV receivers that are addressed in Section 17 of the 1992 Cable Act.[17] Provision of two independent set-top boxes would not give subscribers the same level of functionality. In particular, devices with integrated dual tuner/descramblers may be needed to provide the subscriber with simplicity of operation and minimization of clutter. We are modifying Section 76.630(c) of the rules to reflect this clarification. We note that our rules do not require that each subscriber be given a set-top box with dual tuner/descrambler capability, but only that such boxes be available to subscribers upon request.

Remote Controls

12. In the *First Report and Order,* we adopted a requirement that cable operators allow their set-top devices that incorporate remote control capability to be operated with subscriber-owned remote controls or otherwise take no action to prevent the use of such remote controls.[18] This requirement was adopted in response to Section 624(c)(2)(E) of the Communications Act, which provides that the Commission's shall prescribe such compatibility regulations as are necessary to "prohibit a cable operator from taking any action that prevents or in any way disables the converter box supplied by the cable operator from operating compatibly with commercially available remote control units."[19] As part of our remote control rules, we also prohibited cable operators from changing the IR codes used to operate the remote control capabilities of the set-top devices they employ.[20] We further provided that cable

[16] We note that currently available Picture-in-Picture features generally operate with signals provided through two tuners, and that in most cases the second tuner is obtained from a separate device such as a VCR.

[17] *See First Report and Order, supra,* at para. 47.

[18] *See First Report and Order, supra,* at paras. 61-62. This requirement is set forth in Section 76.630(b) of the rules, 47 C.F.R. §76.630(b).

[19] *See* 47 U.S.C. §544a(c)(2)(E).

[20] The restrictions on changing IR codes are set forth in Section 76.630(c) of the rules, 47 C.F.R. §76.630(c).

operators only may use additional infrared codes for new remote control functions that are not included in existing customer premises equipment.

13. *Petitions.* ANTEC, CATA, CVS, GI, NCTA, SA, TeleCable, Time Warner and Zenith request that we reconsider the prohibition on changing IR codes. The petitioners submit that this rule overlooks the technical, financial, legal, and practical problems inherent in providing subscribers with advanced set-top devices that utilize more than one set of IR codes and that it underestimates the importance of changing remote control codes in the context of set-top device upgrades. NCTA, SA, TeleCable and Zenith also argue that the ban on changing IR codes will impede competition in the set-top equipment market and lessen subscriber access to advanced services.

14. The petitioners first argue that there are significant technical and economic problems in maintaining the functionality of old IR codes in replacement set-top devices. For example, CVS states that in order to maintain old IR codes, new devices would need additional memory and circuitry, at additional cost. GI and TeleCable further state that the IR codes used in different models of equipment sometimes conflict, even where the products are offered by the same manufacturer.

15. ANTEC, CATA, GI, NCTA, SA, TeleCable, and Time Warner argue that IR codes are proprietary and that cable operators therefore will not be able to simply specify that new set-top devices manufactured by one firm be coded to match the remote capabilities of set-top devices from another manufacturer. ANTEC and TeleCable contend that the license fees for existing IR codes would make new equipment more expensive. NCTA states that, contrary to our assessment in the *First Report and Order*, cable operators do not have the purchasing power to dictate the specific IR codes used by a vendor.

16. ANTEC, CATA, GI, NCTA, SA, Time Warner and Zenith argue that the benefits to subscribers of preserving old IR codes sets are minimal. They contend that, in the majority of instances, remote controls purchased by subscribers are "universal" devices that will continue to work even where existing set-top devices are replaced with equipment that uses different IR codes.[21] CVS states that subscribers who have remotes that operate only with an existing IR code set will not have access to new features and therefore will need new remotes regardless of whether the existing codes are maintained.

17. CATA, GI, and NCTA submit that there is no reason to expect that cable operators would replace set-top devices in order to disable subscriber-owned remote controls. They argue that it would be both costly and impractical for a cable operator to engage in this practice. CATA and GI further argue that, given the Commission's actual cost standard for recovery of regulated equipment charges, the profit potential in sale or lease of remote controls would not be a sufficient inducement for a cable operator to undertake a program intended to make subscribers use system-provided remote controls. GI states that such behavior is also unlikely because it would alienate subscribers.

18. The petitioners also argue that the prohibition on changing IR codes will make it difficult for cable operators to improve their network infrastructure and will thwart the introduction of new technology. CVS states that changing the IR codes of remote controls can be essential to the design of new devices that provide enhanced security and new capabilities such as internal bypass switches, TV/VCR compatibility, improved parental control. CVS also submits that no "dual code" set-top devices are currently available on the market and that this rule may therefore force it to delay major upgrades of its cable systems on Long Island and in Connecticut. CVS, GI, and SA argue that the rule will make it difficult for cable operators to change equipment vendors, to the detriment of new vendors.

19. Most of these petitioners ask that the prohibition on changing IR codes simply be eliminated. Several suggest other alternatives. Time Warner suggests that the rule be revised to prohibit cable operators from changing IR codes in installed customer premises equipment, except where the new codes are added to allow the introduction of new services and features, where equipment containing the codes is being substituted for existing equipment as part of a general system upgrade or rebuild, or to recover signal security in a system where security has been compromised. CVS suggests that the prohibition on changing IR codes be replaced with a requirement that cable operators make a "good faith" effort to use IR codes that are compatible with subscriber-owned remote controls. CATA recommends that we delete the rule and simply monitor cable operators' performance in this area and indicate that we will take appropriate action in the future if necessary. TeleCable similarly requests that we replace the IR code rule with a plan that would standardize the IR codes for both cable equipment and consumer TV equipment.

20. *Responses.* In its response, HP supports the petitioners' request to delete the prohibition on changing IR codes. HP argues that this rule creates unnecessary technical complexity for manufacturers while promoting obsolete transmission and coding schemes that should be replaced in order to better serve consumer needs.

21. In opposing responses, CFA/HRRC and EIA/CEG argue that restrictions on changing remote control IR codes are, in fact, necessary to ensure that consumer-owned remote controls remain compatible. CFA/HRRC states that petitioners' argument that it will be complex and costly for new set-top boxes to have more memory or to produce multiple versions of set-top boxes to conform to various existing IR codes is exaggerated. Contrary to the petitioners' claims, CFA/HRRC submits that in practice, most set-top manufacturers make little, if any attempt, to prevent use of their IR codes. EIA/CEG also submits that cable MSOs have great leverage over their set-top box suppliers and are in a position to obtain design features at competitive prices from their suppliers. CFA/HRRC and EIA/CEG further argue that while pre-programmed universal remotes do provide compatibility with most set-top boxes currently on the market, they are useless in cases where cable operators introduce new set-top boxes that use new IR codes.

22. EIA/CEG contends that, contrary to petitioners' claims, cable operators will have an incentive to compel subscribers to use cable-operator provided remotes. While

[21] These parties indicate that where remotes have "learning" capability, they can be programmed with the proper codes to control a new set-top box. Where remotes are pre-programmed at the factory, they are typically preprogrammed to operate with most existing customer premises equipment.

it acknowledges GI's point that rate regulation has taken the enormous profit out of remote controls, it points out that cable operators still earn more profit if they provide remotes to subscribers than if subscribers use their own remotes. Finally, CFA/HRRC and EIA/CEG disagree with the petitioners' position that restrictions on changing IR codes will tie each cable operator to one manufacturer. CFA/HRRC observes that these rules will allow cable operators to change and upgrade their systems and offer new services, so long as the basic IR codes remain the same. EIA/CEG submits that, at a minimum, we should prohibit cable operators from introducing set-top boxes that do not respond to IR codes that were used for certain basic functions as of the date of the *First Report and Order*.

23. *Decision*. We conclude from the information presented by the petitioners and responding parties that the various technical, financial, and practical considerations involved in complying with a requirement for maintaining the functionality of subscriber-owned remote controls when cable operators replace set-top boxes are greater than appears necessary at this time to ensure that subscriber-owned remote controls are not rendered prematurely obsolete. Information provided in the petitions and responses demonstrates that the technical and economic considerations involved in maintaining the functionality of old IR codes in new equipment are far more substantial than we had previously estimated. As indicated by the petitioners and responding equipment manufacturers, we recognize that in designing new set-top equipment, manufacturers often find it advantageous to redesign IR/remote control features, rather than simply extend existing designs by adding new codes for new features. We also recognize NCTA and Time Warner's point that IR receivers are much more complex and expensive to manufacture in a universal format than remote control transmitters. Production of set-top devices with many different combinations of existing and new IR code sets therefore would involve considerable additional expense that would ultimately be borne by cable subscribers. As GI and Telecable observe, it is also possible that the IR codes used in different devices could conflict. We are further concerned that, in cases where the nature of desirable design changes would make it difficult to include both new and existing IR systems, the existing rule could limit innovation in set-top devices. While it is not clear at this time whether manufacturers will be able to exercise proprietary rights to IR codes, the uncertainty posed by that possibility would certainly complicate the application of our rule.

24. We are also persuaded that the need for a requirement to preserve the functionality of existing IR codes is not as great as we had originally concluded. We note that in the great majority of cases, subscriber-owned remote controls are now of the universal type and will be able to command set-top devices with different IR code sets. Where the replacement box would use a completely new design, the subscriber would, of course need a new remote control. We would expect, however, that universal remote controls capable of operating the new box would become available from retailers as well as cable operators shortly after the introduction of newly designed boxes and that such remote controls would be comparable in price to those available now. We also recognize NCTA, GI and CATA's argument that the profit potential in sale or lease of remote controls would not provide a sufficient inducement for cable operators to replace subscriber's set-top boxes. We agree that the cost and effort involved in replacing set-top boxes coupled with the adverse effect this practice would have on subscriber relationships and the fact that consumers would be able to buy remote controls from a third party in some reasonable time frame greatly reduces the incentive for cable operators to engage in this practice.

25. Finally, we do not believe the prohibition on changing IR codes to be necessary to implement the statutory requirement of Section 624A of the Communications Act that we take such steps as may be necessary to prohibit cable operators from preventing or disabling their converter units from operating with subscriber-owned remote control units. Section 76.630(c) was intended to address specific practices by cable operators that we were concerned could adversely affect use of existing subscriber-owned remote controls. As indicated above, we now believe that Section 76.630(c) could effectively deprive cable subscribers of the benefits of new technologies on the basis of concerns that seem unlikely to be realized. We are not eliminating or otherwise modifying Section 76.630(b) in any way, so that cable operators will continue to be prohibited from preventing or disabling their converter units from operating with commercially available remote controls. We also observe that the existing language Section 76.630(b) is sufficiently broad that it would prohibit replacement of set-top boxes by a cable operator simply for the purpose of disabling subscriber-owned remote control units. Accordingly, we are eliminating the requirement that the remote control capabilities of any replacement customer equipment provided to subscribers by cable operators must employ the same IR codes used with the subscriber's existing set-top equipment.

Consumer Education Requirements

26. In the *First Report and Order*, we required cable operators to provide a consumer education program on compatibility matters to their subscribers. This consumer education program must include information that:[22]

> 1) Some models of TV receivers and VCRs may not be able to receive all of the channels offered by the cable system when connected directly to the cable system;
>
> 2) In cases where a set-top device is used to receive service, subscribers may not be able to use certain special features and functions of their TV receivers and VCRs; and,
>
> 3) In cases where cable system operators offer remote control capability with cable system terminal equipment, *e.g.* set-top devices, and other customer premises equipment, that remote control units that are compatible with that equipment may be obtained from other sources, such as retail outlets.

[22] *See First Report and Order, supra*, at paras. 71-74; *see also* 47 C.F.R. §76.630(e).

This requirement was adopted pursuant to Section 17 of the 1992 Cable Act, which provides that the Commission's regulations shall require cable operators to provide their subscribers with certain kinds of information relating to compatibility.[23]

27. *Petitions.* CVS requests that we expand the consumer education requirements to ensure that consumers are aware that any cable equipment they purchase could become obsolete. CVS observes that many technological advances in consumer equipment--such as compact disc players, sixteen-bit video game and more sophisticated software--have emerged to displace incumbent equipment products with a large installed base in a short period of time. It argues that the market for consumer equipment that is compatible with cable systems is no different from other consumer equipment and that consumers need to be made aware that they face the same risk of product obsolescence in purchasing cable equipment as that encountered when purchasing other electronic devices.

28. *Responses.* EIA/CEG opposes CVS's request to expand the consumer education program, arguing that the potential obsolescence of consumer equipment is not related to the requirements of the 1992 Cable Act that cable operators provide subscribers with information on the functions of consumer electronics equipment that are affected by cable set-top boxes. EIA/CEG also states that it is by no means clear when equipment becomes obsolete, and that even obsolete equipment can continue to provide valuable service to the user.

29. *Decision.* We do not agree with CVS that the consumer education requirements should be expanded to include an advisory to subscribers that equipment they may purchase for use in receiving cable service could become obsolete. Such a statement would be inconsistent with our goals of promoting compatibility between cable system and consumer electronics equipment and could also create confusion and unnecessary uncertainty for subscribers that might adversely affect their decisions to buy new equipment. We also agree with EIA/CEG that the potential obsolescence of consumer electronics equipment is not related to the requirements for consumer information required under Section 17 of the 1992 Cable Act. In particular, those requirements do not address the potential obsolescence of consumer electronics equipment. Thus, the expansion of the consumer education requirements suggested by CVS is not required, or contemplated, by the 1992 Cable Act. We therefore are denying CVS's request that we expand the consumer education requirements to include such an advisory.

DECODER INTERFACE CONNECTOR

30. In the *First Report and Order*, we concluded that the public interest would be served by adopting an updated Decoder Interface standard, rather than the existing "multiport" standard.[24] We therefore indicated that we would defer adoption of a Decoder Interface standard pending completion and submission of an acceptable standard by the Joint Engineering Committee (JEC) of the Electronics Industries Association and the National Cable Television Association. We further advised the parties developing the new standard that the Decoder Interface connector must allow access control functions, *i.e.*, security, to be separated from other functions. We noted that such capability would allow non-security functions to be provided through new products offered by retail vendors or to be incorporated into TV receivers and VCRs, thereby promoting competition in the market for equipment used to receive cable service.

31. *Petitions.* EIA/CEG requests that we clarify our intentions with regard to the separation of access control from other functions in the Decoder Interface standard. In particular, EIA/CEG asks that we indicate that we will: 1) require the Decoder Interface to be designed in such a way as to enable all functions other than access control to be provided in competitively supplied equipment; and, 2) require cable operators to offer component descramblers that perform only signal security functions.

32. NCTA submits that our plan to require that the Decoder Interface standard provide for separating access control from other functions may put the cable industry at a disadvantage in the provision of non-security services. It states that this policy could be interpreted as limiting cable systems to providing component devices that only allow descrambling. NCTA states that cable operators should be able to provide devices that offer the full panoply of services, provided they do not interfere with or impede the ability of a competing video delivery system or third party distributor's equipment to connect to the Decoder Interface. NCTA requests that we clarify that allowing access control functions to be separated from other functions does not mean that cable operators are precluded from using Decoder Interface modules that provide functions other than access control.

33. *Responses.* In their responses, GI and Time Warner join NCTA in urging that we clarify that the Decoder interface standard will not preclude cable operators from offering component descramblers that perform functions other than security. GI argues that a restriction on the functions provided by component descrambler modules would frustrate consumer choices in video features. Time Warner states that incorporation of security and non-security functions in the same device would allow cable operators to realize cost savings in the manufacture of component descramblers. It notes that the same microprocessor that performs security functions can also be used for other functions.

34. Other responding parties, including Compaq, EIA/CEG, and CERC, urge that we preserve our plan to open the market for cable-related consumer electronics equipment to full and fair competition. For example, EIA/CEG argues that if consumers can only obtain component descramblers that also include non-security functions, the non-security features would not be competitively provided and the whole purpose of the Decoder Interface would be defeated. Compaq similarly argues that allowing cable systems to bundle non-security functions with security functions in the component modules could foreclose competition in non-security devices. It states that, in addition to the market for traditional TV and VCRs, such bundling would also adversely effect the ability of producers of other products, such as computers that contain television tuner boards, to provide the features and functions that best meet subscribers needs.

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[23] These requirements are set forth in the new Section 624A of the Communications Act, *see* 47 U.S.C. §544a(c)(2).

[24] *See First Report and Order, supra*, at paras. 39-42.

35. To address this concern, EIA/CEG, CERC and Compaq submit that we should require cable systems to make security-only component descramblers available to their subscribers. EIA/CEG recommends that cable systems be allowed to bundle security and non-security functions into a single box, provided that they also make available an unbundled "security only" module. Compaq advises that if we adopt this approach, we should also ensure that the Decoder Interface and component descrambler modules are designed in a manner that will not allow cable operators to discriminate against customers that use cable-related equipment purchased from third-party providers. CERC and Compaq recommend that cable operators not be allowed to bundle descrambling in component modules with non-security features. They believe that requiring physical separation of access control functions from equipment providing other, non-security functions is the best way to ensure that a competitive market will arise in the hardware that supplies other features and even the features themselves. In their replies, NCTA and Time Warner oppose the proposals that we require cable operators to provide component descramblers that only perform security functions or that we require physical separation of security and other features in component modules. NCTA argues that there is no demonstrated market demand for security-only products and that physical separation of these functions will increase the cost and complexity of the component modules and create hazards for interoperability. Time Warner contends that in order to be competitive, cable operators need to be able to integrate non-security related functions into component descramblers in the same way that consumer electronics manufacturers are allowed to integrate such functions in TV receivers and VCRs.

36. CERC also requests that we extend the Decoder Interface design to include new set-top devices. Under this plan, all new set-top devices would be required to be equipped with a Decoder Interface connector in the same manner as "cable ready" TV receivers and VCRs. Such devices could be owned by subscribers and descrambling would be accomplished by attaching the same component descrambler modules that would be used with "cable ready" equipment. Consumers could choose to obtain these new set-top boxes from either their cable operator or a third party vendor. CERC states that the rules for offering the security-only module should be the same for both "cable ready" devices and set-top boxes. CERC submits that this approach would provide cable subscribers that use set-top devices with the same choice and competitive benefits in new features as will be enjoyed by subscribers that use "cable ready" equipment.

37. In their replies, GI, NCTA and Time Warner oppose CERC's suggestion that we extend the Decoder Interface to new set-top devices. They state that the efforts to develop the Decoder Interface standard have focused on "cable ready" consumer equipment and component descramblers and that it is not clear how, if at all, the Decoder Interface would work with set-top boxes. GI argues that this suggestion is therefore beyond the scope of the record in this proceeding.

38. *Decision.* With regard to the positions of both EIA/CEG and NCTA on the Decoder Interface standard, we reiterate that it is our intention that the Decoder Interface serve as a means for promoting competition in the market for equipment used to receive cable service. We believe it is important that participation in this market be open to all parties, including cable operators and consumer equipment manufacturers. In order to ensure that this market is open to all parties, we conclude that it is necessary to require cable operators to offer component descramblers that perform only signal access control functions. At the same time, we see no need to preclude cable operators from also incorporating signal access control functions in multi-function component devices that connect to the Decoder Interface connector. Our decision ensures that subscribers will have several competitive alternatives in selecting component descrambler equipment. First, a subscriber could choose to obtain a device that performs special functions from a retail vendor and, with it, use a basic component descrambler provided by the cable operator. Alternatively, the subscriber could obtain a single device from the cable operator that would perform one or more special features and also incorporate the descrambling function. Finally, the subscriber could decide that he/she does not want to purchase any additional special feature capabilities and simply choose to connect a basic component descrambler directly to the Decoder Interface of his/her TV receiver or VCR. Accordingly, as requested by EIA/CEG, we are clarifying that we intend to: 1) require that the Decoder Interface be designed to enable all functions other than security control to be provided in competitively supplied equipment; and, 2) require cable operators to offer component descramblers that perform only signal security functions.[25] As requested by NCTA, we are further clarifying that we do not intend to prohibit cable operators from using component modules that connect to the Decoder Interface to provide functions other than security.

39. We also believe that the concept of extending the Decoder Interface component descrambler model to set-top devices, as suggested by CERC, may have merit as a means of furthering our goals for both compatibility and promoting competition in the market for equipment used to receive cable service. Adoption of CERC's proposal, or some variation of it, could have important and significant effects on the manner in which cable services are provided and the design and marketing of equipment used to receive those services. We do not, however, have sufficient information and comment before us to support a decision on this proposal at this time. We may explore the possibility of extending the Decoder Interface to set-top boxes in a future proceeding.

RULES FOR NEW EQUIPMENT

Labeling Requirements and Marketing Rules

40. In the *First Report and Order,* we required that consumer TV receivers and VCRs that incorporate features intended to be used with cable service, but do not fully comply with the "cable ready" equipment standards, be labeled with an advisory that appears on the device and its

[25] The rule implementing this decision is not included in Appendix A, but rather will be included in the rules that are adopted in our final decision on the Decoder Interface standard.

packaging.[26] This advisory must indicate that the product does not comply with the FCC standards for cable compatible equipment. As a corollary to this requirement, we also specified that equipment that does not comply with the "cable ready" standards may not be marketed with terminology that describes the device as "cable ready," or "cable compatible," or that otherwise conveys the impression that the device is *fully* compatible with cable service.[27] This restriction on use of the terminology in marketing applies to all consumer TV devices manufactured or imported on or after October 31, 1994.

41. *Petitions.* EIA/CEG and Zenith argue that we should not impose a negative labeling advisory requirement on products that are not claimed to be "cable ready." They contend that we should not require equipment manufacturers to actively denigrate their own products. Zenith and EIA/CEG argue that the consumer electronics industry already has strong incentives to provide descriptive information to consumers in order to avoid complaints and to stimulate demand for more fully-featured products. Zenith further argues that the statement required by this rule, if not specifically read by the consumer in the store, will only cause confusion among consumers who have already purchased a product and have it home.

42. EIA/CEG also requests that we clarify the phrase "fully compatible with cable service" as used in the context of the corollary limitation on use of terminology in the marketing of equipment set forth in Section 15.19(d)(2) of the rules.[28] It submits that factual statements about certain features of a device or claims relating to the quality of a device should be considered claims of partial compatibility and therefore outside the aegis of the rule. For example, EIA/CEG submits that marketing claims such as a device "tunes cable channels with unsurpassed accuracy" or is "capable of receiving 125 cable channels" (or 181 channels total) should not be considered a representation that a device is fully compatible. It further states that inclusion of features such as "F connectors" should not be construed to imply a claim of full compatibility.

43. EIA/CEG and Zenith also seek clarification regarding the certification statement required under Canadian General Radio Regulations, Part II, Paragraph 19(3)(b). These Canadian regulations require that the phrase "Cable Compatible Television Apparatus Canada GRR Part II" appear on some equipment sold in Canada that would not meet the definition of "cable compatible" in the United States.[29] EIA/CEG and Zenith submit that manufacturers should not be prohibited from labeling equipment sold in the U.S. with a phrase required by the government of Canada and that the Canadian label cannot reasonably be construed to imply conformance with the Commission's regulations. Zenith states that the most cost effective method for complying with this Canadian requirement is to emboss the statement in the rear cabinet panel, where it is unlikely to cause confusion for consumers. It states that eliminating the Canadian certification statement from its products would require it to make separate models for each country solely to comply with different government labeling requirements. These parties ask that we allow that manufacturers to include the Canadian GRR Part II label on equipment marketed in this country that does not meet the definition of "cable compatible" in our rules.

44. EIA/CEG submits that the October 31, 1994, date for implementing the restriction on using the terms "cable ready" and "cable compatible" in marketing products that do not fully comply with the "cable ready" equipment standards falls in the middle of the equipment "model year."[30] It states that this date poses problems for manufacturers who printed large quantities of marketing materials for the 1994 model-year's products, some of which use the term "cable ready" or the equivalent.[31] To avoid disruption and additional expense for manufacturers, EIA/CEG requests that we delay the implementation date for this restriction until the end of the model year, *i.e.*, June 30, 1995. Zenith supports this request.

45. *Responses.* In their responses, Cablevision Industries Corporation (CVI) and NCTA oppose EIA/CEG's request that we eliminate the advisory labeling requirement. They argue that the advisory labeling is needed to help consumers who are purchasing equipment to avoid confusion about the extent to which available products are compatible with cable service. CVI contends that, because of the manner in which equipment is presented in retail outlets, equipment shortcomings often manifest themselves only after a consumer makes a purchase and tries to use it at home.

46. NCTA opposes EIA/CEG's request that we clarify our requirement that marketing material used with equipment other than "cable ready" equipment must not convey the impression that the device is fully compatible with cable service. It believes that use of broad marketing statements such as "tunes cable channels with unsurpassed accuracy" or "is capable of receiving 125 cable channels" would lead a reasonable consumer to assume that a product is completely compatible with cable service. In its reply comments, EIA/CEG argues that the broad, open-ended interpretation suggested by NCTA would effectively prevent TV receiver manufacturers from making any factual statements about the capabilities of products that are not "cable ready."

47. NCTA also opposes EIA/CEG's request that we extend the date for implementing the restriction on using the terms "cable ready" and "cable compatible" in marketing products that do not fully comply with the "cable ready" equipment standards. It contends that the printing costs associated with marketing materials are just a fraction of the several billion dollar-a-year consumer TV business. In reply, EIA/CEG and Mitsubishi submit that the cost of reprinting marketing materials is, in fact, a significant consideration in the highly competitive consumer electronics industry, where profit margins are small.

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[26] *See First Report and Order, supra*, at para. 83; *see also* 47 C.F.R. §15.19(d) and §15.118(a).

[27] 47 C.F.R. § 15.19(d)(2).

[28] EIA/CEG notes that examples of language that would be considered to convey that a device is fully compatible with cable service were not identified in the *First Report and Order*.

[29] GRR, Part II, Paragraph 19(3)(b) specifies that all television receivers marketed in Canada that tune VHF, UHF, and mid-band and super-band cable channels contain a permanent label or marking in the English and French languages that states "Cable Compatible Television Apparatus Canada GRR Part II."

[30] The EIA/CEG indicates that, depending on the manufacturer, the model year for consumer electronics products typically runs approximately from July 1 to June 30.

[31] In an *ex parte* letter of September 12, 1994, EIA/CEG estimates that the cost of reprinting marketing materials across all brands of consumer electronics equipment would exceed $4 million.

48. *Decision.* Our concern in adopting the advisory labeling requirement for TV receiving devices that incorporate some features intended to be used with cable service was to assist consumers in differentiating between products that are "cable ready" and other products. On reconsideration, we agree with the EIA/CEG that a negative advisory requirement could cause consumers confusion about the capabilities of TV products. In particular, we are concerned that a negative advisory could lead consumers to doubt the quality of products that might, in fact, meet their needs very well. The inadvertent effect of the advisory could, in fact, be to lead individual consumers to purchase equipment that has more capabilities than they might need or use. We share CVI's concern that consumers need information to assist them in understanding the capabilities of new equipment. We also believe, however, that equipment manufacturers have incentives to provide adequate positive descriptive information to consumers about the features of different models of equipment to enable them to make appropriate choices. We conclude that these incentives, coupled with the requirement that devices that do not fully comply with the "cable ready" standards may not be marketed with terminology that describes the device as *fully* compatible with cable service, are sufficient to ensure that consumers will be able to differentiate between the capabilities of various products. Accordingly, we are eliminating the advisory labeling requirement for consumer TV equipment that incorporates features intended to be used with cable service, but does not fully comply with the "cable ready" equipment standards.

49. In response to EIA/CEG's question regarding the meaning of the term "fully compatible with cable service," we are clarifying that factual statements about the various features of a device that are intended for use with cable service or the quality of such features are acceptable so long as such statements do not imply that the device is fully compatible with cable service. We do not consider statements relating to individual features that provide "partial" compatibility, such as those mentioned by EIA/CEG, to be representations that a device is fully compatible. That is, statements and claims relating to product features are generally acceptable where they are limited to one or more specific features of a device, rather than the device as a whole. We disagree with NCTA that statements about individual features will convey the impression that a device is fully compatible with cable service. Certain characterizations should be avoided, however. For example, we consider claims that convey that a device "is compatible with cable service," "provides compatibility with cable service," or "is ready to use with cable service" to imply that the device is fully compatible. We are modifying the language of Section 15.19(d)(2) to incorporate this clarification.

50. We do not find it necessary to require that equipment manufacturers omit the Canadian GRR Part II label from products marketed in the United States. This label is generally embossed or otherwise applied on the rear cabinet of a device, as indicated by Zenith, so that it is not readily apparent to consumers, especially when they are shopping for a new unit. We therefore believe that so long as the Canadian label is carried on a device in an inconspicuous location and manner, its presence is not likely to lead consumers to believe incorrectly that a device is fully compatible. We also recognize the advantages of allowing manufacturers to produce one model of a device for sale in both Canada and the United States. Accordingly, we are clarifying that Section 15.19(d) of the rules does not prohibit equipment manufacturers from applying the Canadian GRR II label to TV receivers and VCRs marketed in the United States that do not fully comply with the "cable ready" equipment standards in Section 15.118 of the rules, if that label is carried on the device in an inconspicuous location and manner.

51. Finally, we have allowed the October 31, 1994, effective date of the restriction on use of the terms "cable ready" and "cable compatible" or other terminology that conveys the impression that a device is *fully* compatible with cable service in marketing products that do not fully comply with the "cable ready" standards to go into effect on schedule. We believe it was important to maintain the established schedule for this rule in order that misinformation of consumers about the capabilities of TV receiving equipment cease as expeditiously as is reasonably possible. While we recognize that this has resulted in some additional burden for some equipment manufacturers, we do not believe that the additional design and printing costs are extraordinary. We also note that manufacturers were not obligated to modify marketing materials and labeling associated with devices manufactured or imported before effective date of the rule. Accordingly, we are denying EIA/CEG's request that we delay the effective date of this rule.

Channel Tuning

52. In the *First Report and Order*, we adopted the EIA IS-132 channel plan as the standard cable television channel plan.[32] We specified that both "cable ready" consumer TV equipment and cable systems will be required to adhere to this channel plan. "Cable ready" TV receivers and VCRs will be required to be capable of receiving all NTSC or similar video channels on EIA IS-132 channels up to a minimum frequency range of 806 MHz. Cable systems will be required to conform to EIA IS-132 for all analog channels they transmit in the frequency range 54 MHz to 1002 MHz.[33]

53. EIA/CEG requests we revise the minimum upper tuning requirement for "cable ready" consumer equipment to be 804 MHz, rather than the 806 MHz standard currently specified.[34] It states that 804 MHz is the upper frequency boundary for channel 125 in EIA IS-132. It also requests that we modify the upper limit of the frequency range over which the "cable ready" receiver performance standards apply to conform with the 804 MHz limit.

54. CATA requests that we increase the upper tuning requirement for "cable ready" consumer electronics equipment to 1002 MHz. It argues that requiring cable systems to conform to the standard channel plan up to 1002 MHz while only requiring "cable ready" TV sets and VCRs to tune up to 806 MHz could quickly lead to new channel incompatibility problems. CATA contends that while some parties anticipate that cable systems will use the higher

[32] *See First Report and Order, supra*, at paras. 89, 90 and 134; *see also* 47 C.F.R. §15.118(b) and §76.605(a)(2). EIA IS-132 provides channels across all frequencies from 54 MHz up to 1 GHz and beyond.

[33] The rules do not require cable operators to activate channels for all of the frequencies specified in EIA IS-132.

[34] The 806 MHz minimum upper tuning requirement corresponds to the upper boundary of UHF TV channel 69.

portions of the spectrum for digital transmissions, this should not be assumed. CATA submits that we should not presume that the cable industry's pattern of expanding its spectrum use with regularity will be broken merely because some systems chose to use spectrum saving technologies.

55. *Responses.* In its response, EIA/CEG asks that we deny CATA's request to extend the upper tuning requirement for "cable ready" devices up to 1002 MHz. It states that there is no basis for raising the upper tuning requirement to 1002 MHz. EIA/CEG argues that virtually all existing cable systems are built to a maximum operating range of 750 MHz, and that this is also the current trend for both new and rebuilt systems, including those with new digital network plant being deployed by telephone and cable companies.[35] It further argues that the expense of operating cable plant at the higher frequencies is likely to discourage cable operators from using this spectrum any time soon, and that if this spectrum is ever used it will likely be for digital signals. Finally, EIA/CEG states that increasing the upper tuning requirement would increase the cost of TV receivers in order to tune frequencies that are not used and that this additional cost could discourage production of "cable ready" devices.

56. *Decision.* In the *First Report and Order,* we adopted 806 MHz as the required upper limit of the tuning range for "cable ready" consumer equipment. This frequency was chosen because it reflects the broadcast receiver requirements of Section 15.117(b) of our Rules and the fact that TV receivers normally incorporate a single tuner for tuning both cable and broadcast channels. We recognize, however, that when operating in the cable mode, tuners in cable ready equipment are in many cases tuned to a frequency which is offset relative to that which would be used for reception of off-the-air broadcasting. In particular, we note that at UHF frequencies, cable operations are conducted at approximately 2 MHz lower in frequency than over-the-air broadcast transmissions. Therefore it is not necessary for consumer equipment when operating in the cable mode to be capable of receiving frequencies at the top edge of broadcast channel 69. In the EIA IS-132 cable channel plan, the closest channel to broadcast channel 69 is cable channel 125 which has an upper channel edge frequency of 804 MHz. We are therefore amending our rules to require that "cable ready" TV receivers and VCRs be capable of tuning channels 1 through 125 of the EIA IS-132 channel plan. This change will effectively specify an upper tuning requirement of 804 MHz in the cable mode, as recommended by the EIA/CEG.

57. We are not persuaded that the required tuning range should be extended as requested by CATA. We continue to believe that 804 MHz is an appropriate choice for the minimum upper tuning requirement. We find no reason to alter our previous assessment that cable operators generally are not expected to use frequencies above 800 MHz and that a higher tuning requirement would unnecessarily add to the cost of consumer TV sets and VCRs. Accordingly, we are denying CATA's request.

Tuner Overload

58. In the *First Report and Order,* we required that the tuners of "cable ready" consumer TV equipment suppress distortion (beat frequency) products on any frequency in the desired channel at least 55 dB below the visual carrier.[36]

59. *Petitions.* EIA/CEG and Zenith request that we lower the beat frequency suppression requirement regarding tuner overload to 51 dB, as recommended by the Cable-Consumer Electronics Compatibility Advisory Group. They argue that the higher beat suppression standard of 55 dB is not necessary to prevent tuner overload and will unnecessarily increase the cost of producing receivers. EIA/CEG notes that our rationale for adopting the 55 dB standard was partly based on the potential for the signal level received from a cable system to be as high as +20 dBmV. It submits that under the standards for cable systems specified in EIA Draft Standard IS-23, +20 dB is the maximum level for any individual signal, and that the average signal level for all visual carriers must be less than +15 dBmV.[37] EIA/CEG and Zenith argue that because of the need to avoid overload in the cable system itself, cable operators have an incentive to keep signals as low as possible. They state that the total energy output level of most cable systems is actually much lower than an average of +15 dBmV per visual carrier, and that a 51 dB limit would, therefore, be more than adequate.[38]

60. *Responses.* In its response, CVI recommends that we retain the tuner overload performance standard established in the *First Report and Order.* CVI submits that, consistent with that standard, set-top boxes used by the cable industry provide at least 55 dB of distortion when the input signal is +15 dBmV. It states that if the performance standard for consumer electronics equipment is reduced below that for set-top devices, then subscribers using "cable ready" TVs and VCRs will receive impaired signals when compared to service received through a set-top box. In reply, EIA/CEG argues that cable operators are only required to meet a 51 dB distortion suppression standard, that the typical input level to tuners from cable service is typically +10 dBmV, not +15 dBmV, and that tuners generally perform 5 to 6 dB better than their specification in order to ensure compliance in high volume production.

61. *Decision.* We agree with the petitioners' that the current tuner overload standard and associated testing procedure may place an economic burden on "cable ready" consumer equipment beyond that necessary for proper operation with the majority of U.S. cable systems. We therefore believe that some modification of the overload suppression standard is in order. We are not, however, convinced that consumer equipment should not be held to

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[35] Zenith observes that only three systems have been built with a maximum operating frequency of 1 GHz, and that these were constructed merely to provide additional channel capacity for marketing test trials. It also notes that advent of digital compression and new transmission technologies has obviated the need for such additional capacity.

[36] *See First Report and Order, supra,* at para 98; *see also* 47 C.F.R. §15.118(c)(4).

[37] *See* Electronic Industries Association "RF Interface Specifications for Television Receiving Devices and Cable Television Systems, EIA Draft Standard IS-23." This standard is used by the cable industry and consumer electronics manufacturers to provide an effective interface between cable service and consumer electronics products.

[38] Zenith states that typical cable systems operate near +6 dBmV, which would provide a 9 dB improvement in second order distortion products and even more improvement in third order distortion products.

a tighter standard than cable systems under Part 76 of the rules. We note that signal distortions resulting from signal overload are cumulative in nature. Thus, the combined distortion products of a cable system and a tuner connected to that system may result in interference that is worse than that caused by either of them individually. We therefore continue to believe that a suppression level greater than requested by the petitioners is necessary to avoid the deleterious effects of tuner overload.

62. In considering this issue, we recognize that cable systems have similar difficulties as consumer equipment manufacturers in suppressing distortion products at frequencies above 550 MHz. As EIA/CEG notes, these difficulties typically lead cable systems to operate with lower signal levels at frequencies above 550 MHz. We therefore believe it would acceptable to reduce the required suppression level for signals above 550 MHz to 51 dB as requested by the EIA/CEG and Zenith. Accordingly, we are amending Section 15.118(c)(4) to require that spurious signals within the IF passband shall be attenuated at least 55 dB below the visual carrier from 54 to 550 MHz and at least 51 dB from 550 to 804 MHz. We are also modifying our associated testing procedure to reflect this relaxation. We believe that this modification of the tuner overload standard will reduce the cost of compliance and at the same time continue to provide the same level of performance for consumer equipment.

Image Channel Interference

63. In the *First Report and Order*, we required that "cable ready" consumer TV equipment suppress image channel signals by at least 60 dB for all frequencies from 54 MHz up to and including 806 MHz.[39]

64. *Petitions.* EIA/CEG requests that the image channel suppression standard be lowered to 50 dB for frequencies in the range 714 MHz to 804 MHz. It submits that the potential for image channel interference at a particular frequency comes from a frequency 90 MHz (or 15 channels) above the desired signal. EIA/CEG states that therefore the highest frequency of concern is 714 MHz, which is 90 MHz below the maximum frequency at 804 MHz. It submits that at desired channel frequencies above 714, the image channel products would be beyond 804 MHz and thus would be out of the tuning range of "cable ready" equipment. EIA/CEG therefore believes that 50 dB would be sufficient as the image channel suppression standard between 714 MHz and 804 MHz.

65. *Decision.* The EIA/CEG's recommendation for reducing the image channel suppression standard for frequencies above 714 MHz appears reasonable in light of the expectation that signals on frequencies above 804 MHz or 90 MHz above the desired signal will be of relatively lower amplitude. The EIA/CEG's relaxed specifications for image suppression at higher frequencies reflects its previously stated position that these frequencies are likely to be used for low amplitude digital signals.[40] We agree with the petitioner and are modifying the image channel interference rejection requirements for cable ready equipment to be 60 dB from 54 to 714 MHz and 50 dB above 714 MHz through 804 MHz.

ORDERING CLAUSES

66. Accordingly, IT IS ORDERED that Parts 15 and 76 of the Commission's Rules ARE AMENDED as specified in Appendix A, effective 30 days after publication in the Federal Register. IT IS FURTHER ORDERED THAT the Petitions for Reconsideration of the *First Report and Order* in this proceeding filed by ANTEC Corporation, Cablevision Systems Corporation, Cable Telecommunications Association, the Consumer Electronics Group of the Electronics Industries Association, General Instrument Corporation, the National Cable Television Association, Scientific-Atlanta, Inc., TeleCable Corporation and Time Warner Entertainment Company, L.P., and Zenith Electronics Corporation ARE GRANTED to the extent discussed above and ARE DENIED in all other respects.

67. This action is taken pursuant to Sections 4(i), 7(a), 302, 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 157(a), 302, 303(c), 303(f), 303(g), and 303(r).

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX A

Amendments to the Rules

Parts 15 and 76 of Chapter I of Title 47 of the Code of Federal Regulations are amended as follows:

Part 15 RADIO FREQUENCY DEVICES

1. The authority citation for Part 15 is revised to read as follows:

AUTHORITY: Secs. 4, 302, 303, 304, 307 and 624A of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303, 304, 307 and 544A.

2. Section 15.19 is amended by revising paragraph (d) to read as follows:

§15.19 Labeling requirements.

* * * *

(d) Consumer electronics TV receiving devices, including TV receivers, videocassette recorders, and similar devices, that incorporate features intended to be used with cable television service, but do not fully comply with the technical standards for cable ready equipment set forth in Section 15.118, shall not be marketed with terminology that describes the device as "cable ready" or "cable compatible," or that otherwise conveys the impression that the

[39] Image channels are frequencies that are removed from 14 and 15 channels from the desired channel.

[40] *First Report and Order, supra,* at paragraph 97

device is fully compatible with cable service. Factual statements about the various features of a device that are intended for use with cable service or the quality of such features are acceptable so long as such statements do not imply that the device is fully compatible with cable service. Statements relating to product features are generally acceptable where they are limited to one or more specific features of a device, rather than the device as a whole. This requirement applies to consumer TV receivers, videocassette recorders and similar devices manufactured or imported for sale in this country on or after October 31, 1994.

3. Section 15.115 is amended by revising paragraph (i) to read as follows:

§15.115 TV interface devices, including cable system terminal devices.

* * * * *

(i) Switches and other devices intended to be used to by-pass the processing circuitry of a cable system terminal device, whether internal to such a terminal device or a stand-alone unit, shall not attenuate the input signal more than 6 dB from 54 MHz to 550 MHz, or more than 8 dB from 550 MHz to 804 MHz. The 6 dB standard applies at 550 MHz. The provisions of this paragraph are effective June 30, 1997.

4. Section 15.118 is amended by revising paragraphs (b), (c)(1), (c)(2), (c)(3), (c)(4), (c)(5) and (d) to read as follows:

§15.118 Cable ready consumer electronics equipment.

* * * * *

(b) Cable ready consumer electronics equipment shall be capable of receiving all NTSC or similar video channels on channels 1 through 125 of the channel allocation plan set forth in the Electronics Industries Association's "Cable Television Channel Identification Plan, EIA IS-132, May 1994" (EIA IS-132). This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 522(a) and 1 CFR Part 51. Copies of EIA IS-132 may be obtained from: Global Engineering Documents, 3130 South Harbor Boulevard, Santa Anna, CA 92704. Copies of EIA IS-132 may be inspected during normal business hours at the following locations: Federal Communications Commission, 1919 M Street, NW, Dockets Branch (Room 239), Washington, DC, or the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

(c) * * *

(1) Adjacent channel interference. In the presence of a lower adjacent channel CW signal that is 1.5 MHz below the desired visual carrier in frequency and 10 dB below the desired visual carrier in amplitude, spurious signals within the IF passband shall be attenuated at least 55 dB below the visual carrier of the desired signal. The desired input signal shall be an NTSC visual carrier modulated with a 10 IRE flat field with color burst and the aural carrier which is 10 dB below the visual carrier should be unmodulated. Measurements are to be performed for input signal levels of 0 dBmV and +15 dBmV, with the receiver tuned to ten evenly spaced EIA IS-132 channels covering the band 54 MHz to 804 MHz.

(2) Image channel interference. Image channel interference within the IF passband shall be attenuated below the visual carrier of the desired channel by at least 60 dB from 54 MHz to 714 MHz and 50 dB from 714 MHz to 804 MHz. The 60 dB standard applies at 714 MHz. In testing for compliance with this standard, the desired input signal is to be an NTSC signal on which the visual carrier is modulated with a 10 IRE flat field with color burst and the aural carrier is unmodulated and 10 dB below the visual carrier. The undesired test signal shall be a CW signal equal in amplitude to the desired visual carrier and located 90 MHz above the visual carrier frequency of the desired channel. Measurements shall be performed for input signals of 0 dBmV and +15 dBmV, with the receiver tuned to at least ten evenly spaced EIA IS-132 channels covering the band 54 MHz to 804 MHz.

(3) Direct pickup interference. The direct pickup (DPU) of a co-channel interfering ambient field by a cable ready device shall not exceed the following criteria. The ratio of the desired to undesired signal levels at the IF passband on each channel shall be at least 45 dB. The average ratio over the six channels shall be at least 50 dB. The desired input signal shall be an NTSC signal having a visual carrier level of 0 dBmV. The visual carrier is modulated with a 10 IRE flat field with color burst, visual to aural carrier ratio of 10 dB, aural carrier unmodulated. The equipment under test (EUT) shall be placed on a rotatable table that is one meter in height. Any excess length of the power cord and other connecting leads shall be coiled on the floor under the table. The EUT shall be immersed in a horizontally polarized uniform CW field of 100 mV/m at a frequency 2.55 MHz above the visual carrier of the EUT tuned channel. Measurements shall be made with the EUT tuned to six EIA IS-132 channels, two each in the low VHF, high VHF and UHF broadcast bands. On each channel, the levels at the IF passband due to the desired and interfering signals are to be measured.

(4) Tuner overload. Spurious signals within the IF passband shall be attenuated at least 55 dB below the visual carrier of the desired channel using a comb-like spectrum input with each visual carrier signal individually set at +15 dBmV from 54 to 550 MHz. The desired input signal is to be an NTSC signal on which the visual carrier is modulated with a 10 IRE flat field with color burst and the aural carrier is unmodulated and 10 dB below the visual carrier. Measurements shall be made with the receiver tuned to at least seven evenly spaced EIA IS-132 channels covering the band 54 MHz to 550 MHz. In addition, spurious signals within the IF passband shall be attenuated at least 51 dB below the visual carrier of the desired channel using a comb spectrum input with each signal individually set at +15 dBmV from 550 to 804 MHz. Measurements shall be made with the receiver tuned to at least three evenly spaced EIA IS-132 channels covering the band 550 MHz to 804 MHz.

(5) Cable input conducted emissions. Conducted spurious emissions that appear at the cable input to the device must meet the following criteria. The input shall be an NTSC video carrier modulated with a 10 IRE flat field with color burst at a level of 0 dBmV and with a visual to aural ratio of 10 dB. The aural carrier shall be unmodulated. The peak level of the spurious signals will be measured using a spectrum analyzer connected by a directional coupler to the cable input of the equipment under test. Spurious signal levels must not exceed the limits in the following table:

From 54 MHz up to and including 300 MHz-26 dBmV

From 300 MHz up to and including 450 MHz-20 dBmV

From 450 MHz up to and including 804 MHz-15 dBmV

The average of the measurements on multiple channels from 450 MHz up to and including 804 MHz shall be no greater than -20 dBmV. Measurements shall be made with the receiver tuned to at least four EIA IS-132 channels in each of the above bands. The test channels are to be evenly distributed across each of the bands. Measurements for conducted emissions caused by sources internal to the device are to be made in a shielded room. Measurements for conducted emissions caused by external signal sources shall be made in an ambient RF field whose field strength is 100 mV/m, following the same test conditions as described in paragraph (c)(3) of this section.

(d) The field strength of radiated emissions from cable ready consumer electronics equipment shall not exceed the limits in Section 15.109(a) when measured in accordance with the applicable procedures specified in Section 15.31 and Section 15.35 for unintentional radiators, with the following modifications. During testing the NTSC input signal level is to be +15 dBmV, with a visual to aural ratio of 10 dB. The visual carrier is to be modulated by a 10 IRE flat field with color burst; the aural carrier is to be unmodulated. Measurements are to be taken on six EIA IS-132 channels evenly spaced across the required RF input range of the equipment under test.

Note to Section 15.118: The provisions of paragraphs (a) through (d) of this section are effective June 30, 1997.

Part 76 CABLE TELEVISION SERVICE

5. The authority citation for Part 76 is revised to read as follows:

AUTHORITY: Secs. 2, 3, 4, 301, 303, 307, 308, 309, 324A 48 Stat., as amended, 1064, 1065, 1066, 1081, 1082, 1083, 1084, 1085, 1101; 47 U.S.C. Secs. 152, 153, 154, 301, 303, 307, 308, 309, 532, 533, 535, 542, 543, 544A, 552 as amended, 106 Stat. 11460.

6. Section 76.605 is amended by revising paragraph (a)(1), removing paragraph (a)(2), and redesignating paragraphs (a)(3) through (a)(13) as paragraphs (a)(2) through (a)(12), respectively, to read as follows

Section 76.605 Technical standards.

(a) * * *

(1)(i) The cable television channels delivered to the subscriber's terminal shall be capable of being received and displayed by TV broadcast receivers used for off-the-air reception of TV broadcast signals, as authorized under Part 73 of this chapter; and,

(ii) Cable television systems shall transmit signals to subscriber premises equipment on frequencies in accordance with the channel allocation plan set forth in the Electronics Industries Association's "Cable Television Channel Identification Plan, EIA IS-132, May 1994" (EIA IS-132). This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 522(a) and 1 CFR Part 51. Cable systems are required to use this channel allocation plan for signals transmitted in the frequency range 54 MHz to 1002 MHz. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 522(a) and 1 CFR Part 51. Copies of EIA IS-132 may be obtained from: Global Engineering Documents, 2805 McGraw Ave., Irvine CA 92714. Copies of EIA IS-132 may be inspected during normal business hours at the following locations: Federal Communications Commission, 1919 M Street, NW, Dockets Branch (Room 239), Washington, DC, or the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC. This requirement is effective on May 31, 1995, for new and re-built cable systems, and on June 30, 1997, for all cable systems.

* * * * *

7. Section 76.630 is amended by removing paragraph (c), redesignating rChe existing paragraphs (d) and (e) as paragraphs (c) and (d) respectively, and revising newly redesignated paragraphs (c) introductory text. c(2)(i), and (d)(2)(iii) to read as follows:

§76.630 Compatibility with consumer electronics equipment.

* * * * *

(c) Cable system operators that use scrambling, encryption or similar technologies in conjunction with cable system terminal devices, as defined in Section 15.3(e) of this chapter, that may affect subscribers' reception of signals shall offer to supply each subscriber with special equipment that will enable the simultaneous reception of multiple signals. The equipment offered shall include a single terminal device with dual descramblers/decoders and/or timers and bypass switches. Other equipment, such as two independent set-top terminal devices may be offered at the same time that the single terminal device with dual tuners/descramblers is offered. For purposes of this rule, two set-top devices linked by a control system that provides functionality equivalent to that of a single device with dual descramblers is considered to be the same as a terminal device with dual descramblers/ decoders.

(1) * * *

(2) * * *

(i) To allow simultaneous reception of any two scrambled or encrypted signals and to provide for tuning to alternative channels on a pre-programmed schedule; and,

* * * * *

(d) * * *

(2) * * *

(iii) In cases where cable system operators offer remote control capability with cable system terminal devices and other customer premises equipment that is provided to subscribers, they shall advise their subscribers that remote control units that are compatible with that equipment may be obtained from other sources, such as retail outlets. Cable system operators shall also provide a representative list of the models of remote control units currently available from retailers that are compatible with the customer

premises equipment they employ. Cable system operators are required to make a good faith effort in compiling this list and will not be liable for inadvertent omissions. This list shall be current as of no more than six months before the date the consumer education program is distributed to subscribers. Cable operators are also required to encourage subscribers to contact the cable operator to inquire about whether a particular remote control unit the subscriber might be considering for purchase would be compatible with the subscriber's customer premises equipment.

Note to Section 76.630: The provisions of paragraphs (a) and (b) of this section are effective July 31, 1994, and June 30, 1994, respectively. The provisions of paragraphs (c) and (d) of this section are effective October 31, 1994, except for the requirement under paragraph (c) of this section for cable system operators to supply cable system terminal devices with dual tuners (as needed), which is effective October 31, 1995. The initial offer of special equipment to all subscribers, as required under paragraph (c) of this section, shall be made by October 31, 1994.

STATEMENT
OF
COMMISSIONER ANDREW C. BARRETT
DISSENTING IN PART

RE: *Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992; Compatibility Between Cable Systems and Consumer Electronics Equipment, ET Docket No. 93-7*

By this action, the Commission has revised and clarified its rules ensuring compatibility between cable systems and consumer electronics equipment. While I support the majority of the decisions in this instance, I am troubled by the decision to change the labeling requirement with respect to consumer electronic equipment. Therefore, I dissent only with respect to this issue.

It must be remembered that the consumer electronics equipment compatibility section of the Cable Television Consumer Protection and Competition Act of 1992 ("1992 Cable Act")[41] was adopted as a result of consumer confusion and misunderstanding about the technical capabilities of their electronic equipment *vis-a-vis* their cable systems. Equipment that was called or implied to be "cable ready" or "cable compatible" often led the "uneducated" consumer to believe that he/she would not need a converter or set top box to receive certain cable services. While consumers may have been able to tune certain cable channels, they were often unable to receive any scrambled programming services. In the end, cable operators were faced with unhappy and frustrated subscribers, who had paid large sums of money for electronic equipment that they believed would not require any additional equipment to receive cable service.

To help combat consumer confusion, the Commission adopted specifications for "cable ready" and "cable compatible" equipment.[42] We required manufacturers of any consumer television receivers and video cassette recorders ("VCRs") with features that were to be used with cable service, and that did not fully comply with the specifications to so advise consumers.[43] The Commission's regulations also prohibited the use of terminology as "cable ready" or "cable compatible" or words conveying such impression when marketing this same consumer equipment.

The Commission has now reversed its decision primarily because equipment manufacturers have alleged that this raises the potential for an adverse economic impact stemming from "negative" advertisement. Indeed, some have argued that the cable industry has opposed the elimination of this "negative" labeling requirement because it wants to sell more set top boxes. Even assuming that this were true, I am more concerned that the removal of this labeling requirement will create the same consumer confusion that resulted in the need for the labeling requirement. To that end, I believe the Commission should have considered the greater economic harm that consumers will bear when, in certain instances, they are once again led to believe that they are purchasing potentially higher priced equipment that does not require the additional expense of a converter or set top box.

Finally, while I understand the consumer electronic industry's concern about the potential adverse economic impact of the Commission advisory labeling requirement, I believe that the Commission should have erred on the side of consumer protection as it is the consumer who will have to assess the capabilities of the consumer electronic products. Therefore, I dissent with respect to the Commission's decision to eliminate the "cable ready" or "cable compatible" labeling requirement for consumer electronic equipment.

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[41] Pub. L. No. 102-385, 106 Stat. 1460 (1992), § 17.

[42] Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992; Compatibility Between Cable Systems and Consumer Electronic Equipment, First Report and Order, ET Docket No. 93-7, 9 FCC Rcd 1981 (1994).

[43] *Id.* at para. 83; *see* 47 C.F.R. §§ 15.19(d), 15.118(a).